

NCI Principal Deputy Director's Report

Douglas R. Lowy, M.D.

Principal Deputy Director, National Cancer Institute

*14th Virtual Meeting of the Frederick National Laboratory Advisory Committee
October 19, 2023*

@NCIDrDougLowy
@TheNCI

Welcome! New Ex Officio Members



Blossom A. Damania, Ph.D.

Representative from NCI Board of Scientific Counselors (BSC)

Lineberger Cancer Center

University of North Carolina at Chapel Hill



Julie Papanek Grant, M.B.A.

Representative from National Cancer Advisory Board (NCAB)

Canaan

Menlo Park, California

Today's Talk

- Recent news and updates
- Cancer Moonshot activities
- NCI budget outlook
- Discussion – Q&A

U.S. SENATE COMMITTEE ON
Health, Education
Labor & Pensions

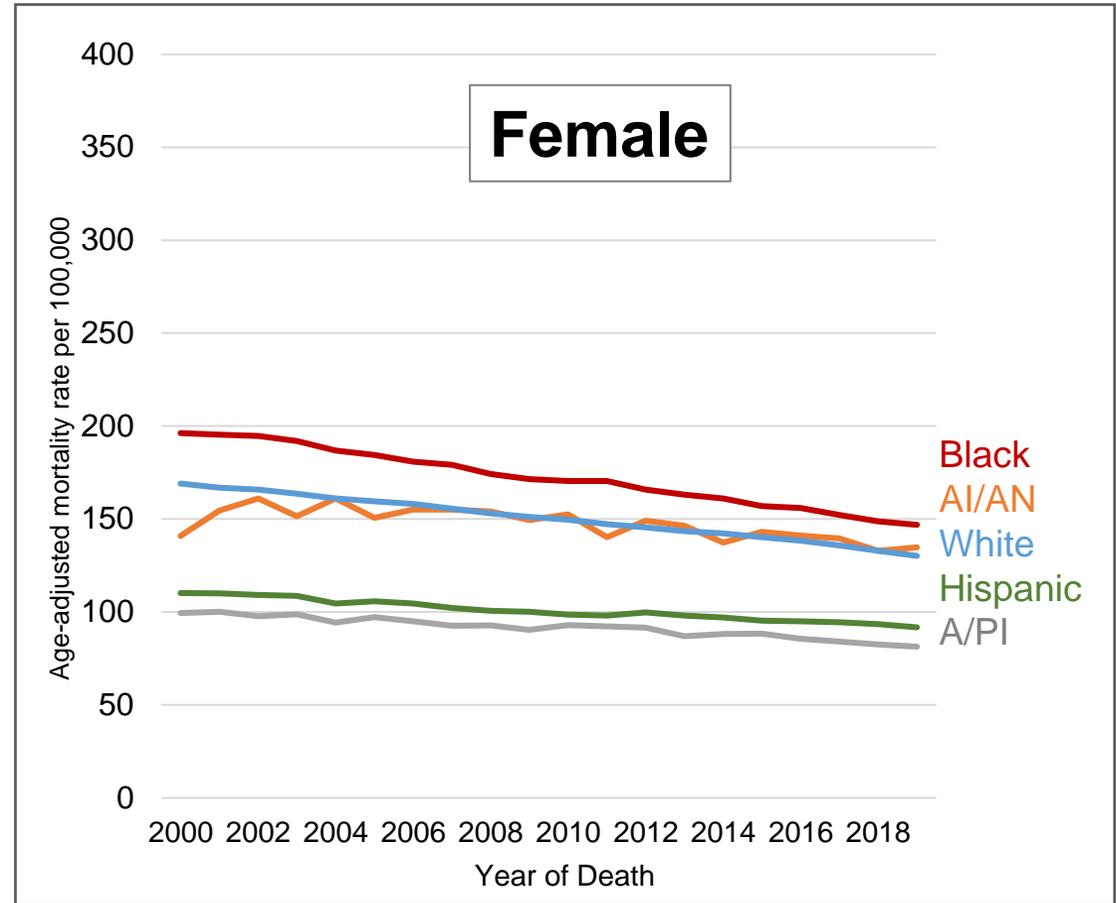
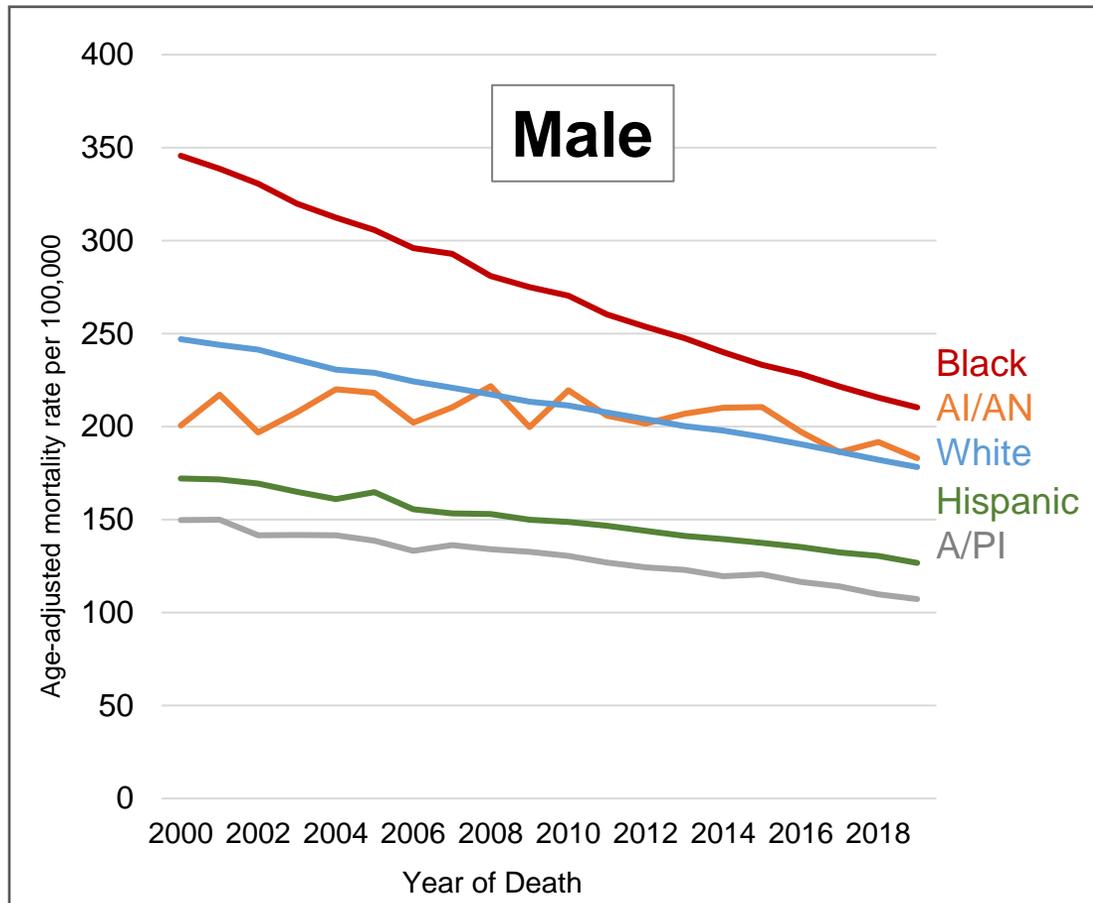
FULL COMMITTEE HEARING

Nomination of Monica Bertagnolli to be Director of the National Institutes of Health

Wednesday, October 18th, 2023



Cancer Mortality Trends by Race/Ethnicity (2000-19)

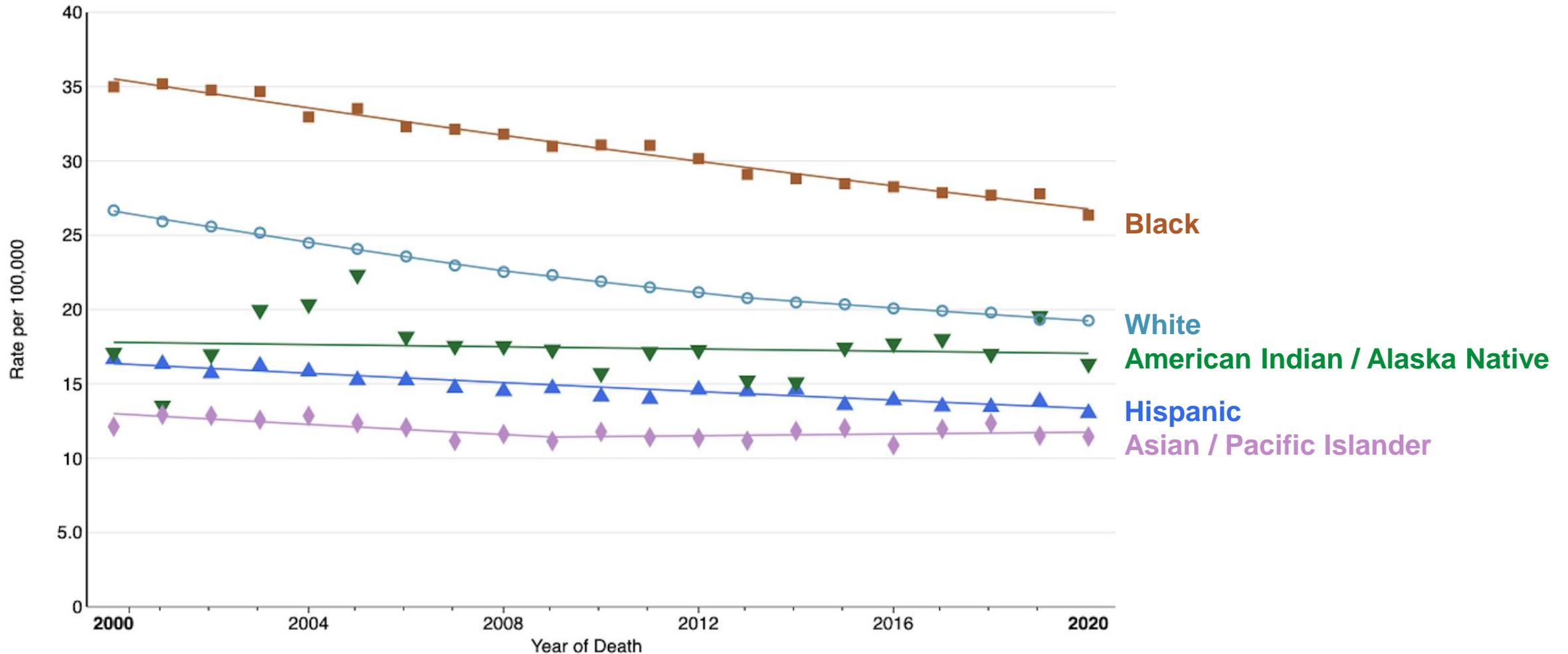


Source: NCI Surveillance, Epidemiology, and End Results Program (SEER), seer.cancer.gov



Lawrence, et al: Trends in Cancer Mortality Among Black Individuals in the U.S. From 1999 to 2019 – *JAMA Oncology*, May 19, 2022

Trends in Female Breast Cancer Mortality Rates By Race/Ethnicity in the U.S. (2000 – 2020)



Recent FDA Approvals for Breast Cancer Treatment

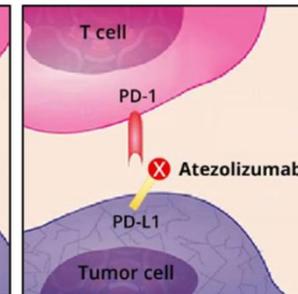
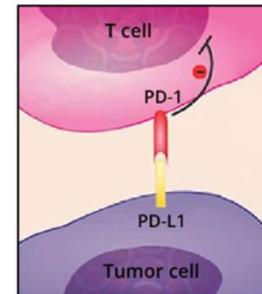
6 approvals in the past 2 years; most for targeted treatment or immune checkpoint inhibitors

Date	Approval / Treatment
March 3, 2023	Expanded early breast cancer indication for abemaciclib with endocrine therapy
February 3, 2023	Sacituzumab govitecan-hziy for HR-positive breast cancer
January 27, 2023	Elacestrant for ER-positive, HER2-negative, ESR1-mutated advanced or metastatic breast cancer
August 5, 2022	Fam-trastuzumab deruxtecan-nxki for HER2-low breast cancer
May 4, 2022	Fam-trastuzumab deruxtecan-nxki for breast cancer
March 11, 2022	Olaparib for adjuvant treatment of high-risk early breast cancer

NCI played key roles in the development of these interventions

PD-L1 immune checkpoint inhibitor (Atezolizumab) approval for advanced alveolar soft part sarcoma; led by NCI intramural program

- An NCI-led clinical trial resulted in the **first approval of a treatment for advanced alveolar soft part sarcoma (ASPS)**, an extremely rare cancer that affects mostly adolescents and young adults
- First time atezolizumab has been approved for children
- Largest study on ASPS
- Previously approved for treating several other cancer types, including liver cancer, melanoma, lung cancer



Atezolizumab binds to PD-L1 and blocks it from binding to another checkpoint protein, PD-1.

*“Forty percent of the patients were treated at the NIH Clinical Center in Bethesda. Our ability to **bring patients in from all over the world** was a key factor in the ability to do the study.”*

*– James Doroshow, M.D.,
NCI Deputy Director for Clinical and Translational Research*



Chen et al. Atezolizumab for Advanced Alveolar Soft Part Sarcoma. *NEJM*. September 7, 2023.

MyPART: My Pediatric and Adult Rare Tumor Network



Engaging patients, advocates, and researchers to improve the lives of young people with rare cancers

www.cancer.gov/mypart

- Focusing on rare solid tumors affecting **children, teens, and young adults (<39)**
- Engaging patients, family members, advocates, clinicians, scientists, as **partners in research**
- Hosting **multi-day clinics** for rare tumors to bring patients and nationwide experts together
- Collecting longitudinal **molecular, clinical, and patient reported** outcome data through the **Natural History Study of Rare Solid Tumors (NCT03739827)**



NCI Patient-Derived Models Repository (PDMR) update: Pediatric low grade glioma cell line now *fully characterized, publicly available*

NIH NATIONAL CANCER INSTITUTE
DCTD Division of Cancer Treatment & Diagnosis

Contact PDMR | PDMR Database User Guide

PDMR NCI Patient-Derived Models Repository
An NCI Precision Oncology Initiative™ Resource

Home Patient Patient Specimen Sample (PDX or In Vitro Culture) **Distribution Lots** Genomic Analysis Reports Search

Patient-Derived Xenograft Samples In Vitro Cultures All Distribution Material

Find Distribution Lot

Go 1. Primary Report Rows 15 Actions ? Export

Disease Body Location = 'Neurologic'

1 - 3 of 3

View	PDM Type	Patient ID	Specimen ID	Sample ID	Distribution Lot Name	CTEP SDC Description	Diagnosis Subtype	OncoTree Code	Disease Body Location	Growth Properties	Max. Passage	Required Media	Human Pathogen Testing Summary
	Mixed Tumor Culture	K52426	315-R	J1-PDC	K52426-315-R-J1-PDC	Pilocytic astrocytoma	Pediatric low-grade glioma	PAST	Neurologic	Adherent Monolayer	42	Complete DMEMF12	Negative
	Mixed Tumor Culture	K57222	313-R	J1-PDC	K57222-313-R-	Glioblastoma	Classical	GBM	Neurologic	Adherent	10	Complete	PDX, LDEV+ Not for Distribution
	Mixed Tumor Culture	K57222	313-R	J1-PDC	K57222-313-R-	Glioblastoma	Classical	GBM	Neurologic	Adherent	10	Complete	PDX, LDEV+ Not for Distribution

1 - 3 of 3

* Patient ID: K52426

Gender: <Unknown> Male Female

Disease Body Location: Neurologic

OncoTree Code: PAST

CTEP SDC Code: 90600112 - Pilocytic astrocytoma

Diagnosis Subtype: Pediatric low-grade glioma

Date of Diagnosis: 12/2009

Age at Diagnosis: 5 - 9

Contributor: Johns Hopkins University; Eberhart

Contributor PDX ID: JHH-NF1-PA1 (cell line)

Grade/Stage Information Available: Stage WHO Grade

Has Known Metastatic Disease: Yes Not Reported

Patient Notes: Tumor Grade/Stage: WHO Grade 1, Stage 1
Recurrent disease - primary site

STR Profile: [Download](#)

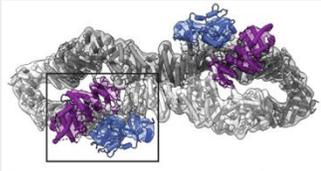
https://pdmdb.cancer.gov/web/apex/f?p=101:3:::NO:3:P3_PATIENTSEQNBR:7159

One of only three neurologic cell lines currently available at FNL and the only one from a pediatric patient.



Dr. Doug Lowy and former NCI Dr. Ned Sharpless with Clayton "Clay" Derderian at a White House childhood cancer event hosted (circa 2019).

More Frederick National Lab Updates

Activity	Importance and potential impact
<p>Frederick National Laboratory just released to NIAID a novel anti-COVID-19 monoclonal antibody</p> 	<ul style="list-style-type: none">• The new monoclonal antibody recognizes the latest coronavirus variants and would hopefully overcome the prior resistance to earlier monoclonals against the coronavirus.• The mAb will be used in an innovative clinical trial for immunosuppressed cases.
<p>RAS Initiative team discovered that neurofibromin exists as a high affinity dimer, changing understanding of how it may be regulated</p> <p>(Young, et al. <i>PNAS</i>. January 23, 2023)</p>  <p>Top view of the final model of NF1 dimer</p>	<ul style="list-style-type: none">• Study describes model for the severe phenotype of patients with Neurofibromatosis Type 1 (NF1) with newly solved cryo-EM structure.• Until now, there have been very few genotype–phenotype relationships for NF1, despite the identification of >2,000 pathogenic variants.• Provides insights into genotype–phenotype correlations for patient counseling, disease management, and treatment.



Goals of the reignited Cancer Moonshot

- Reduce U.S. cancer death rate by 50% in the next 25 years (*hard*)
 - Overcome cancer disparities (*harder*)
 - End cancer as we know it, for all (*hardest*)
-
- NCI jump-started the reignited Cancer Moonshot in FY23 with funds from the initial Moonshot.
 - ***How can NCI ensure the aspirational goals of the reignited Moonshot become feasible?***

Cancer Cabinet Meeting to Advance the Goals of the Cancer Moonshot (September 13, 2023)

President Biden and the First Lady met with the Cancer Cabinet to announce **new actions** federal agencies and non-governmental organizations are taking **to advance the goals of the Cancer Moonshot:**

- ✓ ARPA-H Biomedical Data Fabric Toolbox for Cancer
- ✓ Engaging veterans in tobacco cessation programs
- ✓ Developing a two-way data exchange between NCI's SEER program and the VA cancer registry to learn more about the impact of cancer on veterans
- ✓ ...and more at www.whitehouse.gov/briefing-room

Forbes

What's Next For President Biden's Cancer Moonshot?

Russell Flannery
Sep 21, 2023, 12:45am EDT



In an area of political polarization in Washington, D.C., the Biden administration's Cancer Moonshot has drawn bipartisan support.

**NCI has cancer
research collaborations
with many other U.S.
government
departments and
HHS agencies**

- Department of Defense
- Department of Energy
- Department of Veterans Affairs
- Department of Commerce
- Within the Department of Health and Human Services:
 - Food and Drug Administration
 - Centers for Disease Control and Prevention
 - Health Resources and Services Administration
 - Advanced Research Projects Agency for Health (ARPA-H)...
and many other NIH Institutes and Centers

Cancer Survivorship Summit (October 16, 2023)

Nova Southeastern University, Davie, Florida

- Speakers/panels highlighted gaps in survivorship care, discussed policy proposals, provided community-based resources and support services
- Hosted by U.S. Representative and survivors of breast cancer Debbie Wasserman Schultz
- Keynote speech: First Lady Dr. Jill Biden
- NCI representation from Dr. Doug Lowy as a guest speaker



National Cancer Plan

A plan for the National Cancer Program to align broad societal engagement and focus on critical needs to end cancer as we know it.

EIGHT GOALS

-  **Prevent Cancer**
-  **Detect Cancers Early**
-  **Develop Effective Treatments**
-  **Eliminate Inequities**
-  **Deliver Optimal Care**
-  **Engage Every Person**
-  **Maximize Data Utility**
-  **Optimize the Workforce**

EVERYONE HAS A ROLE!

- The White House
- Congress
- National Cancer Institute
- NIH Institutes and Centers
- U.S. Department of Health and Human Services
- Cancer Cabinet
- Professional Societies
- Advocacy Organizations
- Academia
- Industry
- Foundations
- Health Care Providers
- People with Cancer and Other Individuals

CANCER MOONSHOT

Providing the vision and charge for a whole-of-government approach to stimulate collaboration and accelerate progress across the National Cancer Program

Read the plan: nationalcancerplan.cancer.gov

President's Cancer Panel: National Cancer Plan Initial Stakeholder Meeting (September 7, 2023)



- **Common themes and priority areas:**

- ✓ Recruiting and retaining a diverse cancer research and care workforce
- ✓ Providing accessible care regardless of a patient's geographic location or insurance status
- ✓ Data sharing and interoperability
- ✓ Integrating social determinants of health into research and the cancer care continuum

AAGR



ASCO

ASPO American Society of Preventive Oncology

ASTRO
AMERICAN SOCIETY FOR TROPICAL ONCOLOGY

ACCC
Association of Community Cancer Centers



CEO ROUNDTABLE ON CANCER

HIMSS

NCCN National Comprehensive Cancer Network®

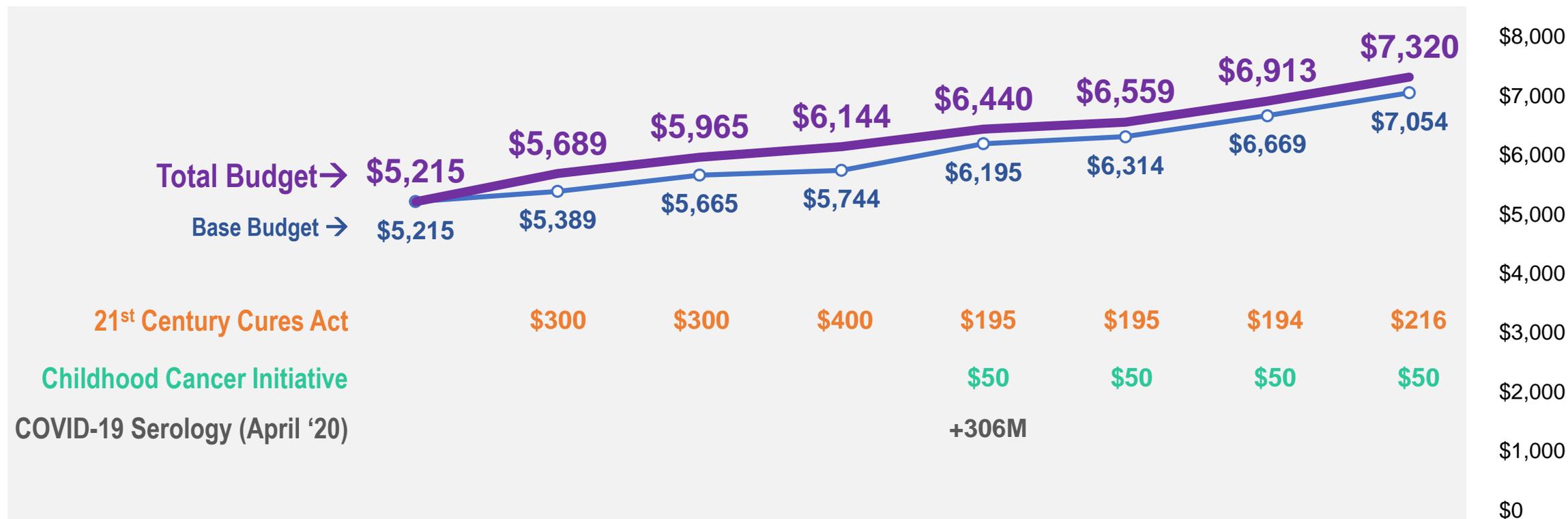
NHMA
National Hispanic Medical Association

NMA National Medical Association
Since 1895

ONS
Oncology Nursing Society

NCI Appropriations and Paylines (FY 2016 – 2023)

Dollars in millions



		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Paylines* (percentile)	Established	10	10	9	8	10	11	11	12
	Early-Stage	12	12	14	14	15	16	16	17

*Established investigators: R01
Early-Stage Investigators: R01/R37*

NCI Fiscal Year 2025 Professional Judgment Budget Proposal

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Leading Progress against Cancer

NCI Fiscal Year 2025 Professional Judgment Budget Proposal

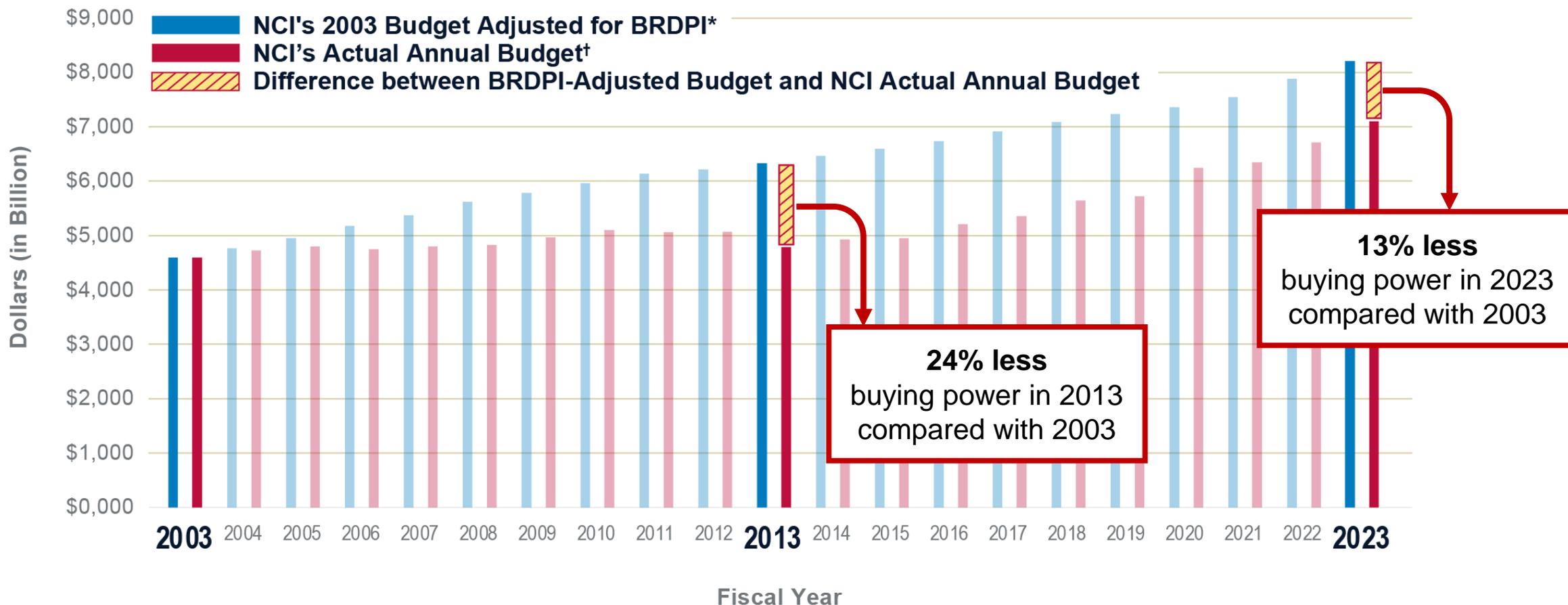
Available at: www.cancer.gov/research/leading-progress

Highlighted Scientific Opportunities

- Improving patients' lives through symptom science research
- Revolutionizing cancer clinical trials
- Clarifying the impact of the environment on cancer risk
- Harnessing the power of cancer data
- Unraveling the complexity of cancer metastasis

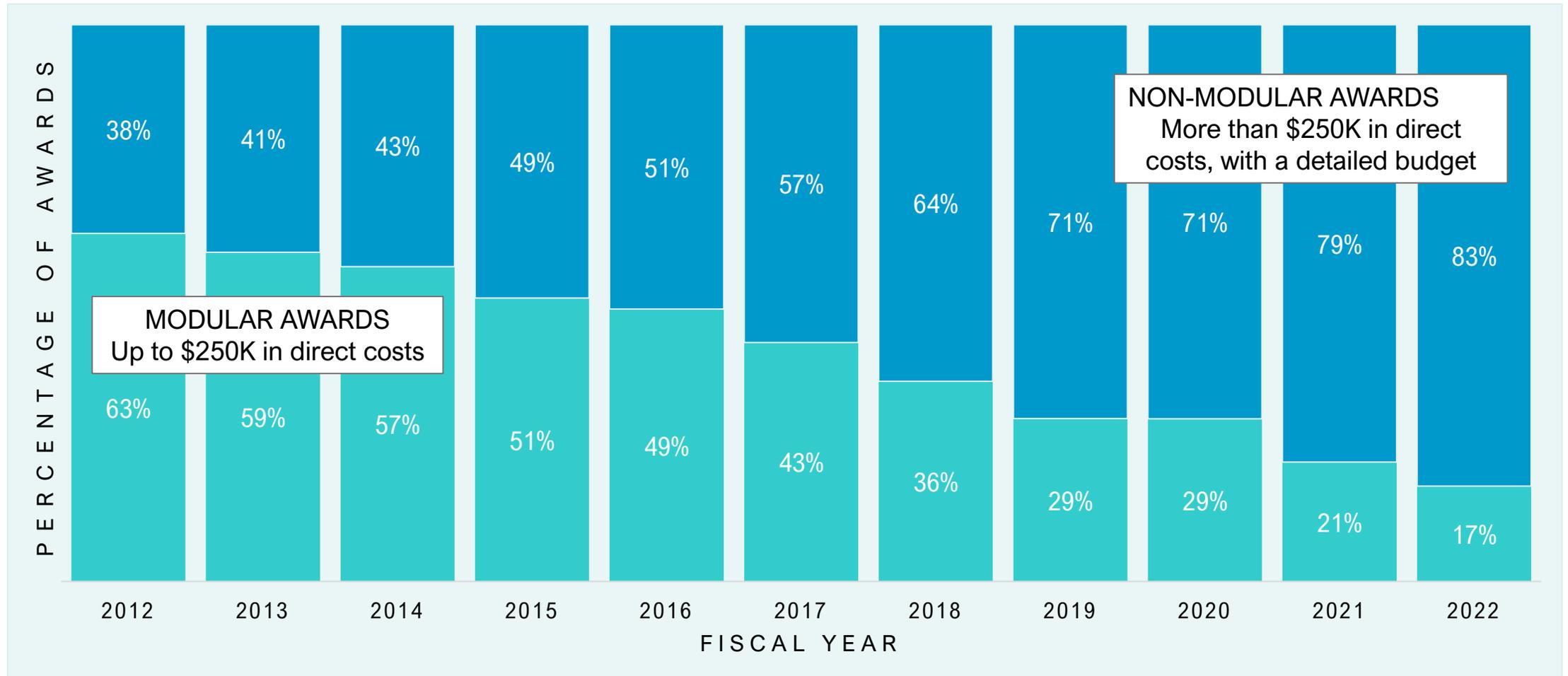
NCI's Research Buying Power is \$1.1B Less than 20 Years Ago

Even with substantial increases in 8 of the last 10 years



Consider: A \$10B budget in FY24 would be +18% more buying power than FY03, or less than 1% increase in buying power per year since FY 2003

Percentage of modular awards has decreased progressively from 63% in 2012 to 17% (~1 in 6 awards) in FY 2022



Total no. of R01 awards made (unsolicited)

620 582 578 623 650 650 676 687 797 811 805

Budget Outlook (FY24 and FY25)

- To meet our goals and narrow gaps in cancer research and care, we need sustained increased funding.
- Although our budget is large, it does not match the opportunities available before us.
- **Bottom line:** NCI's short-term budget outlook is not positive.

	NCI's Professional Judgment Budget Proposal	President's Budget Proposal for NCI	Actual NCI Budget
FY 2024	\$9.988B	\$7.8B (6.9% total NCI budget increase for FY24 compared to FY23 enacted)	?
FY 2025	\$11.466B	<i>The Biden Administration is proposing a further increase of \$1.45B in mandatory budget authority for both FY25 and FY26</i>	?

Implications of a “Flat” FY24 Budget

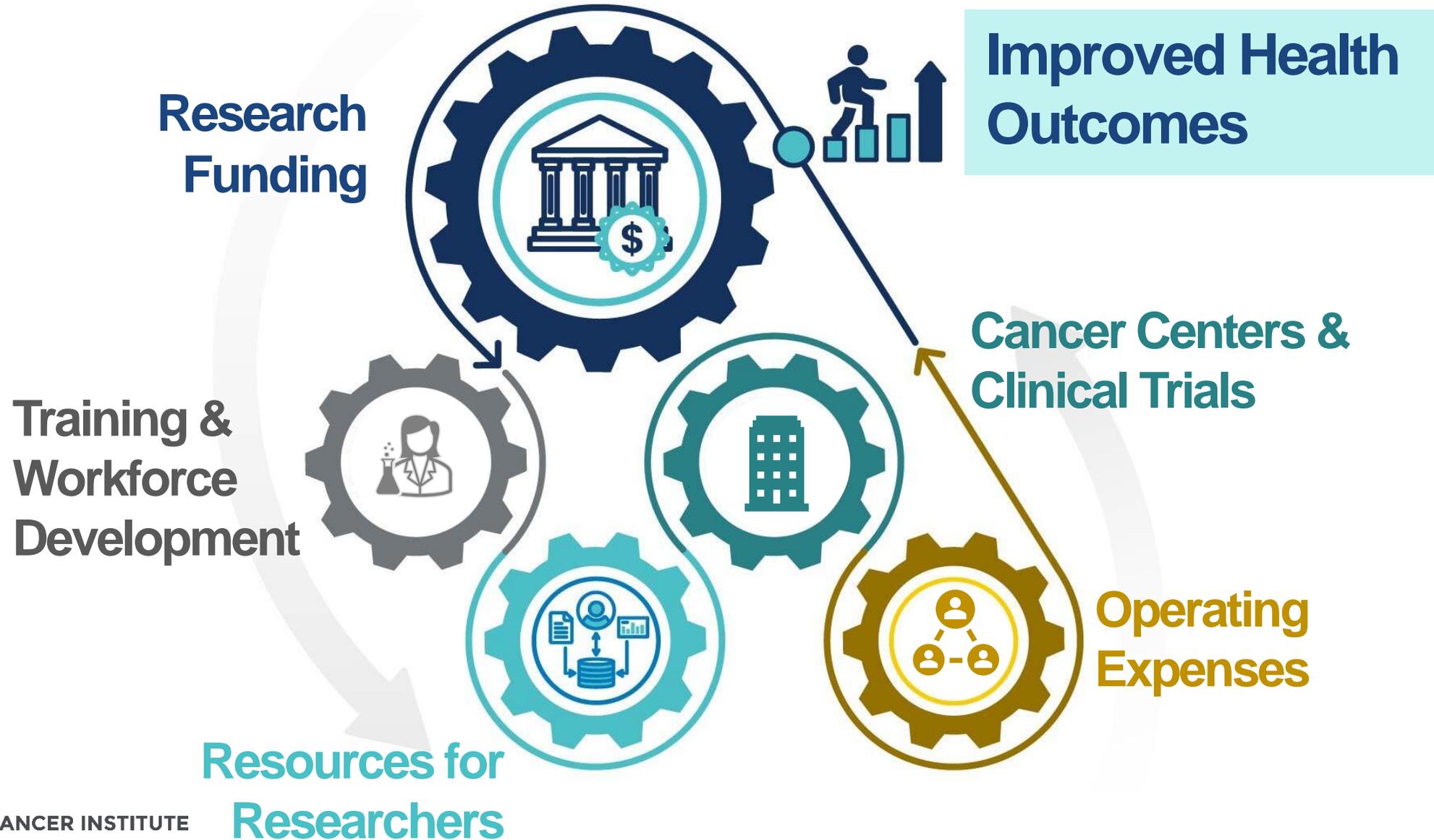
The “flat” budget may NOT be truly flat

- Cancer Moonshot funds were never part of the NCI base budget
- \$216M Moonshot funding for FY23 becomes \$0 in FY24 – the House budget mark *did not* consider this
- Senate *did* consider this issue – and added the \$216M (+ \$60M) to its mark

Additional considerations

- It is necessary to add ~\$250M to the RPG pool in FY24 in order to:
 - ✓ Maintain the current 12th percentile payline for new awards
 - ✓ Fund non-competing awards at 100%
- NCI incurs \$75-\$100M each year in increased “mandatory” expenses
 - ✓ E.g., program evaluation, cyber security, Center for Scientific Review

Interconnectedness of NCI budget and program components



Effects of a “Flat” Budget: Examples

It may be necessary to...

	RPG Pool	<ul style="list-style-type: none">• Decrease the “payline” for new awards• Fund non-competing awards at substantially lower than 100%
	Cancer Center Support Grants (CCSGs)	<ul style="list-style-type: none">• Forgo at least some anticipated increases for competing renewals• Decrease the amount of non-competing CCSGs
	Cancer Training Awards	<ul style="list-style-type: none">• Make fewer new awards
	SPORE Grants	<ul style="list-style-type: none">• Make fewer new awards• Reduce the size of non-competing awards
	Intramural Research Program	<ul style="list-style-type: none">• Cut at least as much as extramural awards

Some Take-Home Messages

- The need to advance scientific discovery and technology development is now being matched by opportunities for meaningful advances.
- However, the anticipated resources for FY24 may not match the opportunities.

We need to work together and steward our resources in partnership with the cancer research community to make progress against cancer as rapidly as possible.

Thank you!

www.cancer.gov

www.cancer.gov/espanol

1-800-4-CANCER

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